

REMARKS

Claims 1, 2, 4, 5 and 7-9 are pending in the present application. Claims 3 and 6 have been cancelled and Claims 1, 4, 5 and 7 have been amended. No new matter has been added. Accordingly, entry of the present Amendment is requested.

Claims 1-4, 8 and 9 have been rejected under 35 U.S.C. § 102(b) as being anticipated by U.S. Patent No. 5,723,527 to Sadatoshi. Additionally, Claims 5 and 7 have again been rejected under 35 U.S.C. § 103(a) as being unpatentable over Sadatoshi in view of U.S. Patent No. 5,880,198 to Kobayashi. Finally, Claim 6 has again been rejected under 35 U.S.C. § 103(a) as being unpatentable over Sadatoshi in view of Kobayashi as applied to Claims 1-4 and 7-9, and further in view of U.S. Patent No. 6,011,102 to Shimojo.

Applicants respectfully traverse these rejections for the following reasons.

The invention claimed in Claim 1 relates to a thermoplastic resin composition which is obtained by melt-kneading a mixture comprising (1) 55-75% by weight of a crystalline polypropylene-based resin, (2) 10-30% by weight of an elastomer comprising a vinyl aromatic compound-containing rubber and an ethylene- α -olefin random copolymer rubber, the ethylene- α -olefin random copolymer rubber comprising an ethylene-octene random copolymer rubber, and (3) 15-25% by weight of talc having an average particle diameter of not more than 3 μ m and which satisfies the conditions (a) - (c) recited in Claim 1.

Referring to page 4 of the Office Action, the meaning of the terms "good," "bad" and "-" in the column "Appearance" of Table 6 are questioned. The term "good" means that there is no flow mark on the molded articles by naked eye observation. The term "bad" means that there is observed flow marks on the molded articles. The term "-" for Comparative Examples 1 and 2

means that no observation has been made. No observation has been made for the appearance, because the tensile tests for those comparative compositions had already been noted as unsatisfactory.

It is asserted that Sadatoshi discloses the use of vinyl aromatic containing rubber. In the Amendment filed September 16, 2002, Applicants' argued that Sadatoshi fails to specifically disclose any thermoplastic resin composition containing an elastomer containing vinyl aromatic compound-containing rubber. Applicants further argued that Sadatoshi fails to teach, suggest or appreciate the advantages of such vinyl aromatic compound-containing rubber that satisfies the presently claimed conditions in relation to the crystalline polypropylene-based rubber.

Sadatoshi discloses (Claim 1) a thermoplastic resin composition comprising (A) a crystalline polypropylene, (B) an ethylene-butene-1 copolymer rubber, (C) ethylene-propylene copolymer rubber, (D) talc having an average particle diameter of 4 μm or less, and (E) fibrous magnesium oxysulfate. A vinyl aromatic compound-containing rubber can further be incorporated into the thermoplastic resin composition (*see*, col. 8, lines 44-45).

However, Sadatoshi neither discloses nor suggests the use of an ethylene-octene random copolymer rubber. Moreover, it neither discloses nor suggests the features (a) - (c) in Claim 1. Accordingly, Applicants respectfully submit that the present claimed invention is not anticipated by Sadatoshi.

Kobayashi discloses a thermoplastic resin composition containing a propylene polymer component (A), a styrene-containing elastomer component (B) and talc (C). This reference has

been cited against Claims 5 and 7 of the present application. However, Kobayashi neither discloses nor suggests the use of an ethylene-octene random copolymer rubber.

Therefore, one of ordinary skill in the art, who considers Sadatoshi and Kobayashi in combination, would not have been led to the invention of Claim 1 of the present application.

Shimojo discloses a polypropylene-based resin composition comprising a crystalline polypropylene-based resin (A), an ethylene-octene copolymer rubber (B) and talc (C). However, it neither discloses nor suggests the use of a vinyl aromatic compound-containing rubber. Moreover, it neither discloses nor suggests the features (a) - (c) recited in Claim 1.

The instantly claimed thermoplastic resin composition comprises a crystalline polypropylene-based resin and talc as well as a vinyl aromatic compound-containing rubber and an ethylene- α -olefin random copolymer rubber that comprises an ethylene-octene random copolymer rubber. The composition further includes features (a) - (c) so as to be superior in physical properties such as rigidity and impact strength, and in processability such as fluidity, and in moldability.

As demonstrated in the attached Declaration of Mr. Shimojo, the compositions according to the invention of the application identified above are superior in physical properties such as rigidity and impact strength, in processability such as fluidity, and in moldability, attributable to the fact that the compositions comprises the components (1) - (3) recited in Claim 1 as well as satisfy the conditions (a), (b) and (c) also recited in Claim 1.

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In contrast, when thermoplastic resin compositions comprising the components (1) - (3) recited in Claim 1 do not satisfy any of the conditions (a), (b) and (c), they do not provide satisfactory performances.

It is submitted that the above results are unexpected and surprising in view of the three cited references each alone or in combination. It is submitted that the invention of the above-identified application is unobvious in view of the three cited references.

In view of the above, reconsideration and allowance of this application are now believed to be in order, and such actions are hereby solicited. If any points remain in issue which the Examiner feels may be best resolved through a personal or telephone interview, the Examiner is kindly requested to contact the undersigned at the telephone number listed below.

The USPTO is directed and authorized to charge all required fees, except for the Issue Fee and the Publication Fee, to Deposit Account No. 19-4880. Please also credit any overpayments to said Deposit Account.

Respectfully submitted,


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PATENT TRADEMARK OFFICE

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APPENDIX
VERSION WITH MARKINGS TO SHOW CHANGES MADE

IN THE CLAIMS:

Claims 3 and 6 are canceled.

The claims are amended as follows:

1. (Amended): A thermoplastic resin composition which is obtained by melt-kneading a mixture comprising (1) 55-75% by weight of a crystalline polypropylene-based resin, (2) 10-30% by weight of an elastomer ~~comprising a vinyl aromatic compound-containing rubber or~~ comprising a vinyl aromatic compound-containing rubber and an ethylene- α -olefin random copolymer rubber, the ethylene- α -olefin random copolymer rubber comprising an ethylene-octene random copolymer rubber and (3) 15-25% by weight of talc having an average particle diameter of not more than 3 μ m and which satisfies the following conditions (a) - (c):

(a) when the crystalline polypropylene-based resin (1) has been melt-kneaded with the elastomer (2) ~~comprising a vinyl aromatic compound-containing rubber or~~ comprising a vinyl aromatic compound-containing rubber and an ethylene- α -olefin random copolymer rubber, the ethylene- α -olefin random copolymer rubber comprising an ethylene-octene random copolymer rubber, the long period obtained by small angle X-ray scattering attributable to the vinyl aromatic compound-containing rubber is 12-24 nm,

(b) when the crystalline polypropylene-based resin (1) has been melt-kneaded with the elastomer (2) ~~comprising a vinyl aromatic compound-containing rubber or~~ comprising a vinyl aromatic compound-containing rubber and an ethylene- α -olefin random copolymer rubber, the ethylene- α -olefin random copolymer rubber comprising an ethylene-octene random copolymer

rubber, elastomer particles which undergo micro phase separation to have the form of particle, and are present in the vicinity of the interface between particles of the elastomer and the crystalline polypropylene-based resin as matrix, have a particle diameter of not more than 30 nm, and

(c) the difference ($\Delta T_g = T_{g1} - T_{g2}$) between the glass transition point (T_{g1}) assigned to the crystalline propylene homopolymer portion of the crystalline polypropylene-based resin (1) and the glass transition point (T_{g2}) assigned to the crystalline propylene homopolymer portion of a composition obtained by melt-kneading the crystalline polypropylene-based resin (1) with the elastomer (2) ~~comprising a vinyl aromatic compound-containing rubber or comprising a vinyl aromatic compound-containing rubber and an ethylene- α -olefin random copolymer, the ethylene- α -olefin random copolymer rubber comprising an ethylene-octene random copolymer rubber,~~ and talc (3) is 4.0-7.0°C.

4. (Amended): The thermoplastic resin composition according to claim 3 1 wherein the elastomer (2) is an elastomer comprising a vinyl aromatic compound-containing rubber and at least two kinds of ethylene- α -olefin random copolymer rubbers.

5. (Amended): The thermoplastic resin composition according to claim 4 wherein the elastomer (2) is an elastomer which comprises (2A) a vinyl aromatic compound-containing rubber described below and at least two kinds of ethylene- α -olefin random copolymer rubbers selected from (2B) an ethylene-octene random copolymer rubber, (2C) an ethylene-butene random copolymer rubber or (2D) an ethylene-propylene random copolymer rubber and wherein

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the contents of the respective rubber components relative to the whole of the composition are as shown below:

(2A) 3-15% by weight of a vinyl aromatic compound-containing rubber which is a block copolymer comprising a vinyl aromatic compound polymer block and a conjugated diene type polymer block, 80% or more of the double bonds of the conjugated diene portion being hydrogenated, and has a Q value of not more than 2.5 as determined by the GPC method, a vinyl aromatic compound content of 10-20% by weight and a melt flow rate of 1-15 g/10 min as determined according to JIS-K-6758 at 230°C.

(2B) ~~0-15%~~ 5-15% by weight of an ethylene-octene random copolymer rubber which has a Q value of not more than 2.5 as determined by the GPC method, an octene content of 15-45% by weight and a melt flow rate of 1-15 g/10 min as determined according to JIS-K-6758 at 190°C,

(2C) 0-10% by weight of an ethylene-butene random copolymer rubber which has a Q-value of not more than 2.7 as determined by the GPC method, a butene content of 15-35% by weight and a melt flow rate of 1-15 g/10 min as determined according to JIS-K-6758 at 190°C, and

(2D) 0-10% by weight of an ethylene-propylene random copolymer rubber which has a Q value of not more than 2.7 as determined by the GPC method, a propylene content of 20-30% by weight and a melt flow rate of 1-15 g/10 min as determined according to JIS-K-6758 at 190°C.

7. (Twice Amended) The thermoplastic resin composition according to claim 5 or 6 wherein the thermoplastic resin composition satisfies the following expressions 1)-3) and the melt flow rate of the composition is not less than 35 g/10 min as determined according to JIS-K-6758 at 230°C:

- 1) $(X_{pp}) + (X_{st}) + (X_{EOR}) + (X_{EBR}) + (X_{EPR}) + (X_{talc}) = 100$,
- 2) $0.20 \leq \{ [(Y_{BC}) \times (Y_{EP}) + (X_{st}) + (X_{EOR}) + (X_{EBR}) + (X_{EPR})] / 100 \} \leq 0.30$, and
- 3) $0.1 \leq \{ (Y_{BC}) \times (Y_{EP}) / [(Y_{BC}) \times (Y_{EP}) + (X_{st}) + (X_{EOR}) + (X_{EBR}) + (X_{EPR})] \}$,

wherein (X_{pp}) is the content (% by weight) of the crystalline polypropylene, (X_{st}) is that of the vinyl aromatic compound-containing rubber (2A), (X_{EOR}) is that of the ethylene-octene random copolymer rubber (2B), (X_{EBR}) is that of the ethylene-butene random copolymer rubber (2C) and (X_{EPR}) is that of the ethylene-propylene random copolymer rubber (2D); (Y_{BC}) is the content (% by weight) of the crystalline ethylene-propylene block copolymer (1A) and (Y_{EP}) is the weight fraction (weight fraction being content (% by weight) / 100) of the ethylene-propylene random copolymer portion, which is the second segment in the crystalline ethylene-propylene block copolymer (1A); and (X_{talc}) is the content (% by weight) of talc.